Building Number: 9

Original Name: Administration / Dormitory

Est. Year of Construction: 1951

General Data

• Square Footage: 5,780 • # of Floors: 2 • # of Rooms: 24

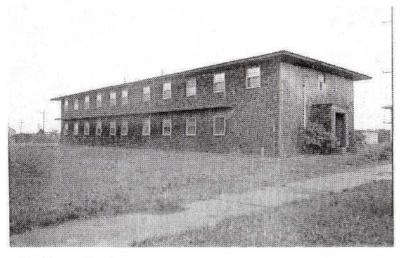
• # of Bedrooms: 16 (8 per floor)

• # of Bathrooms: 2 (combined with shower rooms)

of Kitchens:# of Laundry Rooms:# of Shower Rooms:0

Basement or Crawl Space?
 Crawl space

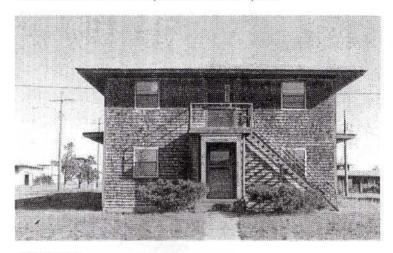
Ceiling Heights: 8'-4"



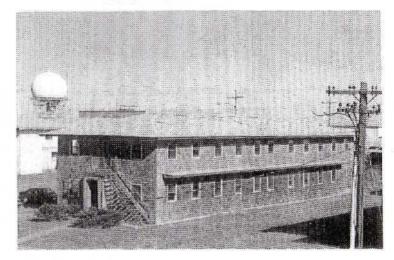
View from northeast.

History and Future Plans

Located on the corner of the center quadrangle, Building #9 was originally used as the Headquarters / Administration Building and as a Dormitory. NPS anticipates use of this building and its companions, Buildings #10, 11, and 12, as a combination of dormitories, studio workspaces and office space.



West facade.



View from southeast.

Exterior Conditions

Roof

Asphalt shingle roof is in **poor condition**. Recommend replacement of 100% of asphalt shingles (38 squares). Deep overhangs are in **fair condition**.

· Wall

Exterior is sheathed in white cedar shingles. **Condition is fair/poor**. Advise replacement of 3000 SF of shingles for 2 sides, and replace vents at perimeter for crawl space.

Trim

Existing wood trim is in **fair/poor condition**. Advise replacement of rotted sections (+/- 250 LF).

Foundation

The foundation of Building #9 is concrete masonry unit (CMU) with some parging.

Framing

Hip Roof: 20-degree slope; 2 x 6 @ 24" O.C.; 2 x 4 @ 24" O.C. C.J.; 3½" x 11" hips.

Wall: Wood 2 x 4 @ 16" O.C.; 2 x 4 @ 24" O.C. corridor bearing walls. Insulation. Fair/good condition.

1st Floor: Wood 2 x 8 @ 24" O.C. with 5½" x 13½" beams spanning 8'-8" over 16" x 16" CMU piers under center brg. walls in **good** condition.

2nd Floor: Wood 2 x 10 @ 18" O.C.; 2 x 8 @ 16" O.C. at corridor.

Life Safety

The three means of egress from Building # 9 are in fair/ poor condition. Advise that all doors be replaced. One interior stair in good condition. Exterior fire escape is rusted; must refurbish or replace stairs and replace platform, or remove and replace with Code-compliant internal egress stairs. Note: two interior stairs exist in #10, 11 and 12. Three steps up to main entrance - not handicap accessible. Interior corridors 5' wide.

Interior Conditions

Ceilina

Interior ceiling is in fair/ poor condition. Several holes where electrical fixtures were. Acoustic ceiling tile (ACT) in fair condition. Cracked and peeling paint throughout needs refinishing.

· Wall

Interior walls are primarily covered with wood paneling and wallpaper over drywall. **Condition is fair**. Holes where electrical outlets have been removed need to be finished. There is also bird and mildew damage. Ceramic tile walls in **fair condition**. Holes exist where plumbing fixtures were removed. Corridor walls are load bearing.

Trim

All baseboard, door, and window trim is in fair/good condition. Advise that all pieces be refinished.

Floor

Floor covering includes vinyl-asbestos tile (VAT) and carpet over a plywood subfloor. Both are in **fair/poor condition** and replacement is recommended. Ceramic tile in both bathrooms is in **fair/good condition**.

Windows

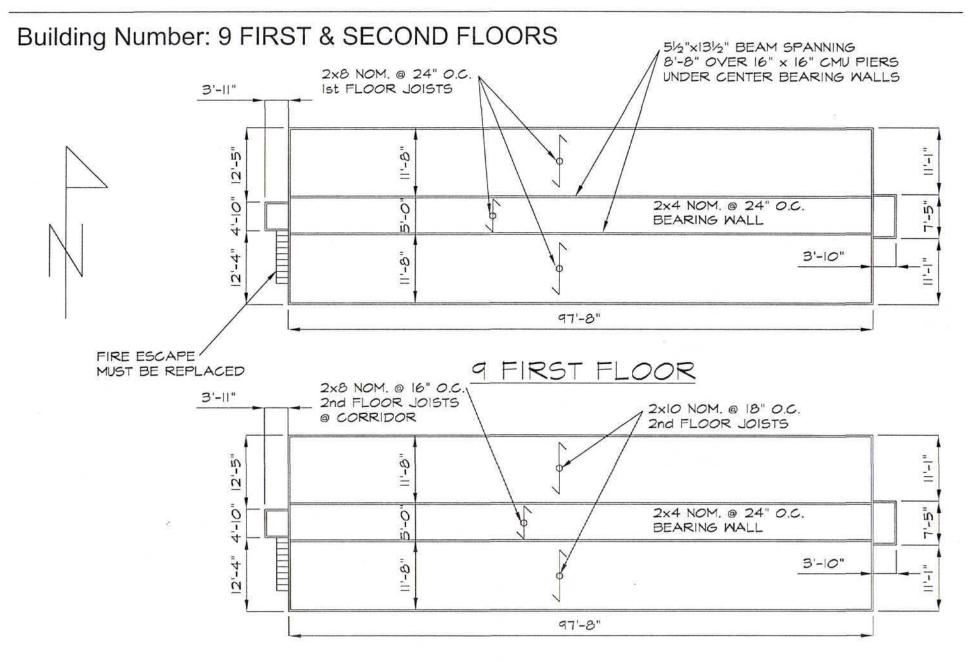
Building # 9 has 46 windows; all are double hung, in fair condition. Aluminum is in fair condition; glazing is in poor condition. Replacement is recommended.

Doors

Interior doors are hollow core in **fair/poor condition**. All have mildew, bird damage and peeling paint. Refinishing advised. Three metal doors; one on second floor is rusted, other two need refinishing. Replacement of all exterior doors recommended.

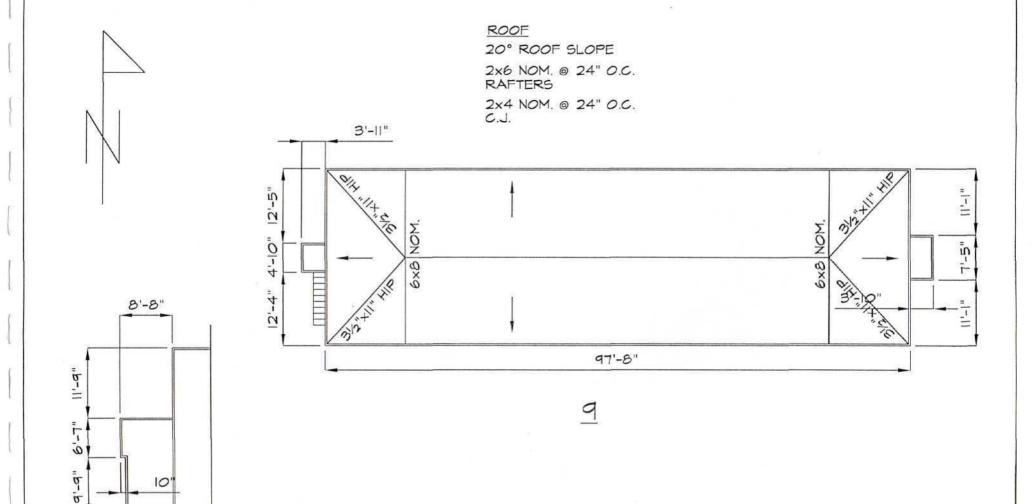
Reusable Fixtures

Most bathroom fixtures are in poor condition. Extant janitors' sinks may be reused. Replacement of other plumbing fixtures required to meet Code. Piping, etc. has exceeded intended service life; refer to Mechanical/Electrical/Plumbing section.



9 SECOND FLOOR

Building Number: 9 ROOF



BUILDING 10,11,12

1'-6"

Building 9

A. Building Classification

Existing Dormitory (originally an Administration Building) is assumed to be R-2 residential use, a multiple-dwelling category including dormitories. Proposed R-2 and/or B use anticipates a combination of dormitory, studio and/or office space.

B. Occupancy and Fire Separations

Per 302.1.1, boiler and furnace rooms require 1-hour separation or an automatic fire suppression system. For R-2 and B use groups, storage rooms > 50 sf and < 100 sf in area require 1-hour separation or automatic fire suppression system with smoke partitions; storage rooms > 100 sf require automatic fire suppression system with smoke partitions.

Per 313.3, in type 5B buildings with an R occupancy, the first floor shall not be occupied for use group B unless the floor/ceiling assembly and the enclosure walls are protected to afford a 1-hour fireresistance rating, and the exits from the residential floor are separately enclosed. Per Table 313.1.2, 2-hour separation required between B and R-2 fire areas.

C. Type of Construction

Type 5B, wood-framed building without fire resistant wall construction (i.e., not "protected construction" per 702.1).

D. Floor Area

5,780 sf < 7,200 sf max. (for B) but > 4,800 sf max. (for R-2) allowed for 5B construction, per Table 503. However, 506.2 allows for street frontage increase of 2% for each 1% of frontage in excess of 25% of building perimeter (i.e., 75% x 2 = 150% for freestanding Bldg. 9). Where a building is equipped throughout with an automatic sprinkler system, the Table 503 area limitation shall be increased 200% for one- and two-story buildings, in accordance with 506.3.

E. Height and Number of Stories

2 stories; conforms to 2-story/30' max. for B and 2-story/35' max. for R-2 (Table 503).

F. Occupancy

Proposed dormitory, studio and/or office space. Maintenance of current R-2 use or change to B use in 5B building would result in change in Hazard Index of +1; Chapter 34 provisions are applicable but subject to 3400.3 residential use restrictions.

Maximum floor area allowance for residential use is 200 gsf per occupant (but actual number of 40 is assumed if all dormitory use; one occupant per room), 100 gsf per occupant for business and other areas (i.e., 58 occupants for shop or office). An "artist's studio" use group is not found in the State Code; per 305.2, structures occupied for business or vocational training are classified in the same use group as the vocation or business taught.

G. Exiting Requirements

Existing two-story Building #9 has three single-leaf exits and includes one internal egress stair and one (severely deteriorated) steel fire escape. (Note that Buildings #10, #11 and #12 incorporate a 2nd interior egress stair rather than the exterior fire escape, but are similar otherwise.) The existing fire escape must be completely refurbished (if allowed by the building official) or replaced by a new enclosed egress stair.

Per Table 1009.2, for R and B uses, egress width of doors, ramps and corridors per occupant is .2" without sprinkler system, .15" with sprinkler system. Existing egress widths are adequate for 40-58 occupants.

Existing windows in Building 9 appear to fall slightly short of the emergency escape window height requirement, which states that every sleeping room in R occupancy shall have at least one operable window (44" max. sill height; min. 5.7 sf opening, min. 24" high x 20" wide) or exterior door approved for emergency egress or rescue (1010.4). However, outside windows are not required in buildings where the sleeping rooms are provided with doors or corridors having access to two remote exits in opposite directions, or in buildings equipped with automatic sprinkler systems.

H. Loading Requirements

Refer to plan diagrams for structural information.

I. Accessibility

Main entrance is one step up; must be refurbished or adapted for universal accessibility. New accessible toilets, water fountain, etc. required.

BUILDING #9: REQUIRED ARCHITECTURAL AND STRUCTURAL REPAIRS

1.	Repair/replace framing and sheathing	100	sf
2.	. Remove and replace rotted trim		lf
3.	Remove and replace cedar shingles	3,000	sf
4.	Prepare and paint wood trim, soffits	1	job
5.	Remove and replace exterior doors, hardware	3	ea
6.	6. Remove windows and replace with metal-clad wood windows		ea
7.	Repair and recondition window sills; paint	46	ea
8.	Remove and replace asphalt shingle roof	38	sc
9.	Install blown-in cellulose insulation at attic, R22	3,600	sf
10.	Install blown-in cellulose insulation at walls, cut & patch	4,500	sf
11.	Remove/replace steel fire escape, paint	1	ea
11 Alt.	Remove fire escape; construct new encl. exterior fire stair		job
12.	. General interior cleanout, mildew treatment		sf
13.	Patching and floor, wall and ceiling finishes (gfa)	5,780	sf
14.	Repair/replace/paint interior doors & trim	1	job
15.	Refurbish main entrance for universal accessibility (path, ramp)	1	jol

IV MECHANICAL, ELECTRICAL, FIRE PROTECTION AND PLUMBING REPORTS – BUILDING NUMBER 9

A. HEATING, VENTILATING AND AIR CONDITIONING

- Existing Conditions (also surveyed Building 11 for comparison)
 - a. Heating Media
 - Heating systems media provided from aboveground, low-pressure steam distribution system that has been disconnected from inactive boiler plant.
 - b. Heating Distribution
 - 1) Fin-tube radiation elements (steel 4"x4" fins and 1" or 1½" steel tube) piping throughout the building.
 - c. Controls
 - Existing controls provide in some areas with selfcontained "Danfoss" type control valves.
 - d. Heating Return
 - Heating condensate return piping is piped within the building crawlspace and piped to inactive condensate pump.
 - e. Domestic Hot Water
 - Domestic hot water requirement provided from steam service and disconnected.
 - f. Ventilation
 - No ventilation provided within interior spaces and corridors.
 - g. Removed Piping
 - At some locations steam risers to second level removed.
 - h. Toilet Exhaust
 - Toilet provided with exhaust fans for service to both floors.
 - i. Kitchen Exhaust
 - 1) Kitchen exhaust fan removed.

2. Recommendations

- a. Heating Media
 - Hot water heating plant, provided with propane gas-fired boiler with propane tanks located outside. Additional space within building will be required for heater plant, boilers, pumps, ventilation, air-handling units, et cetera
- b. Heating Distribution
 - Forced hot water heating with distribution piping systems, provided with fin-tube radiation and individual space controls.
- c. Ventilation
 - Estimated 2200 cubic feet per minute heating and ventilating air-handling unit provided for ventilation air requirement and associated distribution ductwork within corridors.
- d. Toilet
 - New toilet exhaust systems.
- e. Miscellaneous Heating
 - Heating of vestibules and exits provided with wall mounted cabinet unit heaters.
- f. Domestic Hot Water
 - 1) Refer to plumbing for domestic hot water services.
- g. Kitchen Exhaust
 - 1) Replacement of kitchen exhaust air fan.
- h. Automatic Temperature Control
 - Space automatic temperature controls shall be electric/direct digital.

3. Miscellaneous

- a. No central air conditioning is scheduled for this building. However, window (electric) type units may be considered.
- Estimated building heating requirements with (concentrated occupancy) ventilation air is 458 MBH.
- Studio space, central museum-type environmental conditions are not provided.
- d. Refer to supplement section sustainable, passive solar and wind energy technologies ability.

B. PLUMBING

- 1. Existing Conditions (also surveyed Building 11 for comparison)
 - a. Plumbing Fixtures
 - 1) First Floor
 - a) (1) Kitchen with demolished stainless steel sink
 - b) (1) Laundry room (in Building 11) with two washer connections, area floor drain and two washer standpipe drains all in poor/failed condition. This room was not found in Building
 - c) (1) Demolished electric water cooler.
 - d) (2) Demolished water closets, floor mounted with flush valves.
 - e) (2) Shower stalls cast in place with drains and shower valves (parts missing). One common area drain (showers varied in number between buildings 9 and 11). All in poor condition.
 - f) (1) Urinal with flush valve (missing parts)
 - g) (1) Janitor's sink, wall hung
 - h) (2) Lavatories, wall hung with back mounted faucets in poor/failed condition.
 - 2) Second Floor
 - a) (1) demolished electric water cooler.
 - b) (2) Water closets, floor mounted with flush valves
 - c) (5) Showers ganged in one area with one 2inch floor drain. All shower valves are missing parts/trim.
 - d) (1) Urinal with flush valve
 - e) (1) Janitor's sink, wall hung.
 - f) (2) Lavatories, wall hung with back mounted faucets.
 - b. Water Service
 - 1) A 2-inch water service was found in the domestic water heater room. The service enters the building below the first floor and runs within the crawlspace. An existing access door is located under the east stairwell (near compound).

- c. Water Heating
 - 1) A vertical storage, steam fired domestic water heater is located in a closet off the first floor hallway. Only the Patterson Kelly tank remains abandoned in place. All trim and steam accessories are demolished.
- d Domestic Water Distribution
 - 1) Any piping that remains runs in vertical partitions between floors. Cold water service (assume) runs in crawlspace below first floor. Hot and cold water distribution (assume) runs above concealed ceilings.
- e. Sanitary Distribution
 - 1) Assumed to run above concealed ceilings, and within crawlspace. Vent piping was not found. Assumed to collect in concealed attic space and exits through the roof.
- f. Miscellaneous (beyond assumptions)
 - 1) All plumbing fixtures (except janitor's sinks) were in poor to failed condition. However, pending results of careful demolition, the two janitor's sinks may be re-furbished and re-used at another location with new waste, trim, new faucets, valves and wall hangers.
 - 2) The water heater with extensive missing trim, remaining water piping and remaining sanitary piping have all exceeded their intended service life.
 - 3) No floor drains were present in toilet rooms or water heater room.
 - Exterior wall hydrants were not present on this building.
- 2. Recommendations (Dormitory, Studio Space, Office Space).
 - Plumbing Fixtures.
 - 1) 16 Men (Dormitory)
 - a) (2) Water closets
 - b) (1) Urinal
 - c) (2) Lavatories
 - d) (2) Showers
 - (3) Floor drains
 - (1) Hose bibb
 - 16 Women (Dormitory)
 - a) (3) Water closets b) (2) Lavatories

- d) (3) Floor drains
- e) (1) Hose bibb
- 3) 29 Men (Studio each floor)
 - a) (1) Water closet
 - b) (1) Urinal
 - c) (1) Lavatory
 - d) (2) Showers (optional per tenant)
 - e) (1) Floor drain
 - f) (1) Hose bibb
- 4) 29 Women (Studio each floor)
 - a) (2) Water closets
 - b) (1) Lavatory
 - c) (2) Showers (optional per tenant)
 - d) (1) Floor drains
 - e) (1) Hose bibb
- 5) 29 Men (Office each floor)
 - a) (1) Water closet
 - b) (1) Urinal
 - c) (1) Lavatory
 - d) (1) Floor drain
 - e) (1) Hose bibb
- 6) 29 Women (Office)
 - a) (2) Water closets
 - b) (1) Lavatory
 - c) (1) Floor drain
 - d) (1) Hose bibb
- 7) General Building
 - a) (2) Drinking fountains (one per floor)
 - b) (2) Janitor's Sinks (one per floor)
 - c) (4) Exterior wall hydrants
 - d) (2) Mechanical Room floor drains
 - e) (2) Mechanical Room hose bibbs
- b. Water Service
 - A new 2-inch service would be required to accommodate the proposed fixtures for each use. The service would enter into the crawlspace below the first floor in an accessible location.
- c. Water Heating
 - Due to the proposed dormitory shower load and proposed fixtures requiring hot water, a propane fired indirect water heating plant is recommended. A propane fired boiler and storage tank skid

system would be located within a mechanical room on the first or second floor. The room would have a floor drain and hose bibb. This water heating configuration would allow a supplemental heating source (solar or building heating system) to maintain tank temperature when possible. A master thermostatic mixing valve would also be included to prevent scalding due to fluctuating temperatures within the storage tank from the different heating sources.

- 2) The hot water load for studio and office tenants would be very low. A small 10-gallon electric storage heater with low recovery electric input would be recommended. The heater would be located on a shelf within the janitor's closet on each floor. (Assume close to toilet rooms.)
- d. Domestic Water Distribution
 - New domestic hot and cold water piping would run above the first floor ceiling. Branch piping would rise to supply fixtures on the second and drop to first floor fixtures.
- e. Sanitary Distribution
 - 1) A new 5-inch sanitary service would be required to accommodate the proposed fixtures for a dormitory, and 4-inch for studio and office. Piping for second floor fixtures would run within the second floor ceiling and drop within first floor partitions. The first and second floor sanitary mains would collect within the crawlspace and exit the building. Conversely, all vent piping would rise and collect within the attic space and exit to atmosphere with a 4-inch vent through roof.
- f. Propane System
 - A single point-of-use storage tank would be installed by a supplier to accommodate the building heating system and domestic water heating system (for dormitory).
 - A new gas main will follow the domestic water route to the mechanical rooms.
 - 3) The gas load for this building (similar for buildings 10, 11 and 12) will require a relatively large storage tank (for dormitory). Based on review with a propane supplier, and tenant arrangements, it may be more economical and efficient (reduce deliveries) to combine and connect all the buildings surrounding building 9 to one bulk propane storage tank (above or below grade). Meters

could be proposed at each building for billing and usage, et cetera

Miscellaneous

- Kitchen and laundry provisions are not included at this time.
- To eliminate the time required and associated fuel/water wasted for proper temperature to reach fixtures, electric temperature maintenance cable on all domestic hot water piping is recommended.
- The possibility of combining propane loads for this building and similar adjacent may be considered. Refer to sustainability supplement.
- For sustainability, review sustainability section and possible combining of systems noted above.

C. FIRE PROTECTION

1. Recommendations:

- An automatic fire suppression system shall be installed per code (R-2 use group).
- b. A dry automatic fire suppression would be installed.
- A new, 4-inch service with double check valve assembly would be necessary.
- d. Two new dry alarm check valves with related trim would be necessary: one for the crawlspace and first floor systems, and one for the second floor and attic area systems.
- e. Piping would be schedule 40 steel with screwed and mechanical fittings and be sized for light hazard occupancy per NFPA 13 standards.
- f. Sprinklers would be installed throughout the crawlspace, first floor, second floor and attic space. The building would be divided into two zones based on the alarm valves.

D. ELECTRICAL

1. Existing Conditions:

- a. Building Electric Service:
 - 200 ampere, 120/240 volt, single phase, 3-wire, overhead service drop from pole number A-20/2, to a General Electric, 200 ampere, 30-pole main panel with main circuit breaker and branch circuit breakers. Panel is in poor condition. Service has been disconnected.
- b. Fire Alarm System:
 - A fire alarm panel was not observed to be present.
 There are ProtectoWire pull stations located at the back and front entries on both floors. There are smoke detectors located in the corridors and the rooms. There are alarm-indicating bells located in the corridors. The system is not operational and in poor condition.
- c. Lighting:
 - Fixtures are incandescent drums with lenses, surface mounted on ceilings. Fixtures are in fair to poor condition.
 - Fluorescent wall brackets are located at sinks in the toilet rooms. Fixtures are in fair to poor condition.
- d. Emergency Lighting:
 - Central batteries with remote lighting heads. The system is not operational. Batteries are dead.
 - 2) Exit signs are incandescent and are in poor condition.
- e. Exterior Lighting:
 - Incandescent type, 120 volts, switch controlled. Fixtures are in poor condition.
- f. Wiring Devices:
 - Grounding type receptacles, color: brown. Devices and coverplates are in fair to poor condition.
- g. Telephone System:
 - System enters the building underground and is in disrepair. Main telephone room is on the second floor. System has been disconnected. Interior wiring is in poor condition.

2. Recommendations:

- a. All systems are in fair to poor condition and must be replaced for the building to be habitable for any use. See Part III Typical Mechanical, Electrical, Fire Protection and Plumbing Items.
 b. Refer to "Sustainability Supplement" section.

We have listed in Table 1 the location and estimated quantity, by square foot (sf), linear foot (lf), or other appropriate unit, of each type of ACBM identified at the site. We have also provided asbestos location drawings in Appendix B.

TABLE 1. • List Of Materials	Testing Positive For Asbestos
Building 9, Truro Air Base	, North Truro, Massachusetts

Type of Material	Location	Quantity	
Tan/green 12"x12" floor tile and associated mastic adhesive and brown floor tile under plywood flooring (3 layers separated by plywood)	Throughout first floor	2,592 sf	
Gray cement (transite) panels	First floor hot water heater room	150 sf	
Brown glue daubs and associated 1'x1' ceiling and wall tiles	First floor west office area	780 sf	
Tan 12"x12" floor tile and associated mastic adhesive and brown floor tile under plywood flooring (2 layers separated by plywood)	Throughout second floor	2,592 sf	

In Table 2, all materials that tested negative for asbestos are listed, including the locations where these materials were observed and the corresponding bulk sample reference number(s).

TABLE 2. • List Of Ma	terials Testing Negative For	Asbestos		
Building 9, Truro Air Base, North Truro, Massachusetts				
Type of material	Location(s) observed	Sample number(s)		
Tan mastic adhesive	Beneath wood paneling	9-07A		
Gray 1'x1' ceiling tile (must be treated as ACM due to cross-contamination by glue daubs	First floor west office area	9-10A		
Brown tan wall paper	Throughout	9-11A, 9-16A		
White gypsum wallboard	Throughout	9-12A, 9-12B, 9- 12C		
White joint compound associated with gypsum wallboard	Throughout	9-13A, 9-13B, 9- 13C		
Gray 2'x2' ceiling tiles	Second floor	9-15A		
Black tar paper	Exterior under wood shingles	9-17A		

2.0 Conclusions and Recommendations

On the basis of our findings, we offer the following conclusions and recommendations:

- Only nonfriable ACBM were identified at the site. Should the building be renovated or demolished, removal of the ACBM will be
 necessary. Abatement of all nonfriable ACBM that will be made friable by demolition activities must be performed before
 building renovation/demolition. This work should be conducted by a licensed Asbestos Abatement Contractor in accordance with a
 project design prepared by a certified Abatement Project Designer.
- 2. The two layers of ACM floor tile are separated by plywood flooring and would require removal of the plywood to access all layers of flooring. The associated plywood must be treated as ACM due to cross-contamination from the floor tile mastic adhersive.
- 3. If any suspect ACBM are identified at a later date that are not addressed in this inspection report, they should be assumed to be ACBM unless appropriate sampling and analysis demonstrates otherwise.
- 4. Develop a site-specific operations and maintenance (O&M) program for properly maintaining ACBM that will remain in place. Such a program would include a site-specific O&M plan, training of workers who may impact ACBM, periodic inspection of locations where ACM is present, and other applicable guidelines and procedures.

VHB

XRF Field Testing Results

Site Access: Yes

Demo Permitted?: Yes

Project# 06780

Location: Building #9

Date

11/4/99

Page 1 of 1

Project Name: N. Truro AFS

Inspector: TMD

Location	Surface Tested	Substrate	Concentration (mg/cm²)	Estimate Quantity
First Floor				
Hallway	Brown door casing	Wood	< 0.1	
	Brown fire door	Wood	0.1	
	Tan textured papered wall	SR	< 0.1	
	Brown mid-hall door	Wood	0.2	
Mail Room	Tan window casing	Wood	< 0.1	
Office Across from Mail Room	Tan split door	Wood	4.5	1
Bathroom	White window casing	Wood	< 0.1	
V05 **610.300963300	Green wall	SR	1.1	
	Green stall divider	Metal	< 0.1	
	White door	Wood	< 0.1	
Second Floor			< 0.1	
Stairs to Second Floor	Brown hand rail	Wood	0.1	
	Tan stair treads	Wood	< 0.1	
	Tan stair stringer	Wood	< 0.1	
Hallway	Tan baseboard	Wood	0.1	
Hallway	Tan door casing	Wood	0.3	
	Brown door	Wood	0.2	
	Tan textured papered wall	SR	0.1	
Storage Room	Tan shelf	Wood	0.1	
	Tan wall	SR	0.5	
	Tan door	Wood	0.1	
	Tan baseboard	Wood	0.7	
	Tan window casing	Wood	< 0.1	
Bathroom	Blue wall	SR	0.6	
	Blue stall divider	Metal	3.8	
	Blue stall doors	Wood	2.5	
	Blue upper wall	SR	2.1	
Exterior	Brown trim	Wood	< 0.1	
	Brown eve	Wood	6.7	1,200 SF

^{*}LBP components only. Limit of detection of NITON XRF is < 0.1 mg/cm²) SR=Sheet Rock Block=Cinder Block SF=Square Feet

VHB Oil and Hazardous Materials (OHM) Inventory

Project: Former Air Force Station Location: North Truro, MA Project # 06780

Sheet: 3 of

Location	Waste Type	Container Type	Volume of ConteQuantity	Comments	
Building #9					
	Mercury	Fluoroscent lights	24	4 foot/8 in-place	
	PCBs	Light ballasts	2		